

Epitomes

Important Advances in Clinical Medicine

Otolaryngology—Head and Neck Surgery

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The Council on Scientific Affairs of the California Medical Association presents the following epitomes of progress in otolaryngology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and clinical importance. The items are presented in simple epitome, and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, researchers, and scholars to stay abreast of progress in medicine, whether in their own field of special interest or another.

The epitomes included here were selected by the Advisory Panel to the Section on Otolaryngology of the California Medical Association, and the summaries were prepared under the direction of Terence M. Davidson, MD, and the panel.

Guidelines for Managing Chronic Otitis Media With Effusion

EAR INFECTIONS IN CHILDREN result in substantial economic cost to society. Persistent middle ear effusions that result in conductive hearing loss are implicated in delays or permanent limitations of speech, language, and cognition. Otitis media is the most common illness diagnosed by office-based physicians for children younger than 15 years, and tympanostomy tube placement in children for recurrent acute otitis media or chronic otitis media with effusion is the most commonly performed operation in the United States requiring general anesthesia. Children younger than 3 years are in their greatest period of language acquisition and therefore have the most to lose developmentally from a persistent hearing loss.

Because of the economic and developmental effects of otitis media with effusion in children, the US Department of Health and Human Services has sponsored the development of a clinical guideline for treating otitis media with effusion in children. This guideline applies to children between the ages of 1 and 3 years with no craniofacial, neurologic, or sensory abnormalities. The target child is asymptomatic, without signs or symptoms of acute otitis media, yet has otitis media with effusion. Pneumatic otoscopy is the main diagnostic tool, with tympanometry suggested as a method to confirm the presence of an effusion. After six weeks of an effusion, the administration of oral antibiotics is a therapeutic option. Parenteral decongestants, antihistamines, and oral steroids are not recommended at any time to treat the effusion only. Adenoidectomy or tonsillectomy is not recommended at any time for the management of effusion. Signs and symptoms unrelated to effusion—nasal congestion, allergic disease, nasopharyngitis—are not addressed by this guideline. Environmental risk factors for otitis media should be controlled at all times.

After three months of effusion, the patient's hearing is assessed using techniques appropriate for the age of the

patient and the availability of audiologic services. A 20-dB or worse bilateral hearing loss should be treated with antibiotics or bilateral tympanostomy tube placement. Children with an effusion for four to six months and a 20-dB or worse bilateral hearing loss should receive tympanostomy tubes in both ears. An audiologic assessment is appropriate whenever concern arises regarding a child's hearing status.

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REFERENCE

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Benign Positional Vertigo

A PATIENT'S COMPLAINT of dizziness can be nearly as troubling to the physician as it is to the patient. Most forms of dizziness, however, can be diagnosed in the office based on the results obtained from a precise history and physical examination. Benign positional vertigo is one such disorder that can be readily diagnosed by primary care physicians. Furthermore, new insights into the pathogenesis and treatment of this disorder have allowed for the development of simple, office-based therapeutic maneuvers that are highly effective at eliminating positional vertigo.

The history of a patient with benign positional vertigo is that of true rotatory vertigo elicited by a rapid head movement in a nonaxial plane—such as rolling over in bed or looking up to obtain an item on a shelf. Patients will usually steady themselves, and the vertigo will resolve within seconds (usually <1 minute), although the patient may feel unsteady, nauseated, or frightened for a longer period of time. Although this classic history is diagnostic for this disorder, evidence for the diagnosis may be derived from the physical examination by the performance of the Dix-Hallpike maneuver. In this test, the pa-

tient moves from a sitting to a supine position with the head hanging over the end of a bed and rotated 45 degrees so that one ear is facing the ground. The maneuver is repeated so that both ears are evaluated. When the affected ear is facing the ground, symptoms of vertigo will develop and an eye examination will reveal a rotatory nystagmus that begins about 10 seconds after the patient assumes the offending position. The vertigo and nystagmus will usually abate within 30 seconds, whereupon returning the patient to a sitting position with the head straight will cause a recurrence of the symptoms and a reversal of the direction of the nystagmus, although usually with less intensity.

Benign positional vertigo may affect people of all ages and of either sex. It is most frequently idiopathic in origin, but it may result from head trauma or a viral infection of the inner ear or vestibular nerve (labyrinthitis or vestibular neuronitis). It is thought to result from organic debris depositing itself within the posterior semicircular canal of the inner ear. This debris may originate from the inner ear's otolith organs and may be free-floating within the posterior canal or deposit itself on the cupula of the posterior canal.

The prognosis for patients with positional vertigo is excellent, with the symptoms ultimately resolving in more than 90% of patients. This may take months, however, during which time the patient may have difficulty performing activities of daily living. Some patients may even refrain from physical activities and restrict themselves to bed rest. This further hampers their recovery, as the resolution of symptoms seems to depend on maintaining physical activity.

Within the past decade, two simple treatment modalities have been developed that allow for the rapid resolution of benign positional vertigo and the nearly immediate return of patients to a normal level of function. These maneuvers are designed to rid the posterior canal of the offending debris. The Epley maneuver is more popular in North America because it is better tolerated by patients, and therapeutic results have been better documented. In this maneuver, a patient begins in a sitting position and is then placed supine, with the head hanging over the edge of the bed and rotated at 45 degrees, so that the affected ear is facing the floor. This maneuver should elicit the characteristic vertigo and nystagmus. Once the symptoms resolve, the patient is maintained in a supine position while his or her head is slowly rotated in the opposite direction, so that the unaffected ear is now facing the floor. The patient's head and whole body are then rotated a further 90 degrees, after which the patient resumes the sitting position. This series of positioning maneuvers allows the organic debris to be cleared from the posterior canal and to fall into the vestibule of the inner ear, where it causes no symptoms and will ultimately be cleared. A vibrating device placed behind the ear during the maneuver seems to increase the efficacy of treatment. The patient is advised to avoid a supine position for 48 hours after the maneuver to minimize the possibility of debris migrating back into the canal. Epley reports that one such treatment

will lead to symptoms completely resolving in more than 80% of patients, and repeating the maneuver two to three times improves the efficacy to better than 90%.

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Botulinum Toxin for Hyperfunctional Facial Lines

BOTULINUM TOXIN A has been used for the treatment of focal dystonias since 1984. Such conditions as blepharospasm, torticollis, spasmodic dysphonia, limb dystonia, and hemifacial spasm have all been successfully relieved by administering botulinum toxin into the involved muscles. Although these movement disorders have a central neurologic origin, they respond to focal weakening of their end-organ skeletal muscles by the direct intramuscular administration of botulinum toxin. A similar weakening or neuromuscular blockade of nondystonic muscles can be achieved for cosmetic purposes. Administering botulinum toxin into specific muscles of facial expression leads to a relaxation of the muscles' pull on the overlying skin, thereby reducing hyperfunctional lines.

Botulinum toxin binds irreversibly to neuromuscular junctions and inhibits the release of acetylcholine. A flaccid paralysis or weakness is thus produced in the treated muscle. The effect is overcome as new acetylcholine terminals are generated, and muscle strength and activity return three to six months after treatment. There have been no long-term adverse effects reported with the use of botulinum toxin, but repeated exposure to large doses of toxin (>300 IU in a 30-day period) is thought to increase the risk of antibody formation and therapeutic resistance.

Hyperfunctional facial lines such as frown lines, crow's-feet, and deep nasolabial grooves are common cosmetic deformities. These furrows result from the pull of underlying mimetic muscles of the face. Such lines have been treated in the past by surgical excision, administering silicone or collagen, and chemical peels. Each of these treatments has specific disadvantages, and none addresses the underlying facial muscles that create the function lines. Administering botulinum toxin into the corrugator supercilii (glabellar lines); frontalis (forehead lines); lateral orbicularis oculi (crow's-feet); zygomaticus, levator labii superioris alaeque nasi, and orbicularis oris (nasolabial crease); and platysma (neck bands) specifically induces graded weakening of the muscles responsible for the visible skin lines. Electromyographic guidance is frequently used to assure precise administration into the respective muscles. Diffusion or displacement of the administered